

1. How do you interpret and schedule client samples?
2. What are the main hazards and enterprise controls associated with the sample, preparation methods, reagents and equipment?
3. Describe how to prepare two different types of mineral samples, explain both destructive and non-destructive methods.
4. How do you know you have prepared the sample appropriately?
5. How do you clean equipment between samples?
6. How is waste minimised and spent/surplus samples disposed of?
7. What is sodium peroxide used for?
8. What are the safety issues/hazards involved in the use of sodium peroxide?
9. An ore sample contains ‘free’ particles of metallic gold. What is an appropriate method to process/prepare samples with metallic present?
10. Describe the ‘wet ashing’ technique. (What acids are involved?). When is this technique to be used over the ‘dry ashing’ method?
11. Describe the ‘dry ashing’ technique. What are its limitations?
12. What is the main hazard in using DIBK in a lab?
13. Why is it important samples are dry prior to preparation or analysis?
14. Describe the following terms: • Homogeneous • Heterogeneous • Integrity • Segregation • Ore • Gangue • Refractory

15. Write a chemical reaction for the roasting of iron sulphide (FeS) in air (O ₂).
16. Why is it important gold samples (during the aqua regia digestion procedure) don't go to dryness?
17. How can arsenic be detected during the roasting process?
18. How would you know if your sample contains high levels of nickel?
19. Why is temperature control important during acid digestion?
20. If an analyst wanted to completely dissolve a sample, what acid mixture would be used?
21. What hazards are associated when using an air-gun?
22. Why are samples given a quartz wash between samples?
23. What are the main hazards associated with the use of hydrofluoric acid?
24. What is the main purpose of HF during an acid digest of a mineral sample?
25. What safety equipment is required when using HF in a chemical laboratory?
26. What is required in all laboratories in case of a HF burn on a laboratory worker?
27. What are the main hazards associated with the use of perchloric acid?
28. What acids (and ratios) are required in the preparation of aqua regia?
29. Calculate the volume of 1000ppm Fe stock solution required to make 200mL of 50ppm Fe.
30. A rotary splitter reduces? (State the correct answer) A – particle size B – sample size
31. A riffle splitter reduces? (State the correct answer) A – particle size B – sample size
32. A rotary splitter reduces? (State the correct answer) A – particle size B – sample size
33. A ring mill reduces? (State the correct answer) A – particle size B – sample size
34. A jaw crusher reduces? (State the correct answer) A – particle size

B – sample size